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Capture of Atlantic Salmon in the Mactaquac Area and Their Distribution in the Saint John River System, N.B. from 1983-1988

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Fisheries and Aquatic Sciences No. 791

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ABSTRACT

Ingram, J.H. and B.V. Ensor. 1989. Capture and distribution of Atlantic salmon in the Mactaquac area, Saint John River system, 1983-1988. Can. Data Rep. Fish. Aquat. Sci. No. 791: 55 p.

This report provides counts and summaries of wild and hatchery one-sea-winter and multi-sea-winter Atlantic salmon ascending Mactaquac Dam fish collection facilities and the Mactaquac Hatchery migration channel on the Saint John River, New Brunswick, 1983-1988. Distributions include the numbers of male and female fish of wild and hatchery origins retained as broodstock and those trucked to upriver release sites. Counts of other species, including alewives and blueback herring ascending Mactaquac Dam fish collection facilities, are also summarized.

Key words: Saint John River, Mactaquac Dam, fish collection facilities, Mactaquac Hatchery, Atlantic salmon, grilse, broodstock, other species, fish distribution, migration channel.

RÉSUMÉ

Ingram, J.H. and B.V. Ensor, 1989. Capture and distribution of Atlantic salmon in the Mactaquac area, Saint John River system 1983-1988. Can. Data Rep. Fish. Aquat. Sci. No. 791: 55 p.

Le présent rapport contient les chiffres détaillés et sommaires des saumons de l'Atlantique d'élevage unibermarins et redibermarins ayant remonté les installations de capture du poisson du barrage de Mactaquac et le corridor de cueillette de la station d'alevinage de Mactaquac, situés sur le fleuve Saint-Jean au Nouveau-Brunswick, de 1983 à 1988. Les chiffres en question révèlent le nombre de femelles et de mâles d'élevage et sauvages gardés comme reproducteurs ainsi que le nombre de saumons amenés en camion en amont du barrage pour être remis à l'eau. Le rapport contient également des chiffres sommaires sur les gasparots et les aloses d'été qui remontent les installations de capture du barrage de Mactaquac.

Mots clés: Fleuve Saint-Jean, barrage de Mactaquac, installations de capture du poisson, station d'alevinage de Mactaquac, saumon de l'Atlantique, madeleineau, reproducteurs, autres espèces, répartition du poisson, corridor de cueillette.



INTRODUCTION

The Mactaquac hydroelectric power dam, which spans the main stem of the Saint John River about 16 km upstream from Fredericton, New Brunswick, first became operational in 1967. Fish collection facilities at the dam first became operational in the spring of 1968. To compensate for expected losses in natural production of Atlantic salmon (*Salmo salar*), Mactaquac Hatchery was constructed in 1968 about 2 km below the power dam.

Most upriver-migrating fish ascend the Mactaquac Dam collection facilities built along the downstream face of the power dam's first four of six turbines. In addition, some salmon mainly of hatchery origin, ascend the smolt migrating channel or water outflow of the hatchery. Returning adults of hatchery origin can be identified by eroded fins, clips or tags applied prior to their release; or freshwater growth characteristics on scales. Smolts released from Mactaquac since 1985 have spent one year in freshwater whereas wild fish have spent two or more years in freshwater.

To enable easier sorting of salmon and to obtain biological data on each, a secondary sorting facility was built at the hatchery in 1971.

This report provides daily and summary counts of anadromous Atlantic salmon captured at Mactaquac facilities from 1983 to 1988 and a continuum of compilations for the years 1967-71 (Smith 1979), 1972-76 and 1977-82 (Ingram 1980 and 1985). Also included are summary counts and estimates of some other fish species ascending the Mactaquac Dam fish collection facilities. The 1989 salmon data is on computer and plans are to continue this format in subsequent years.

PRESENTATION OF DATA

The tables and appendices of this report provide detailed counts of Atlantic salmon taken at both the fish collection facilities of Mactaquac Dam and the trap in the smolt migration channel from the Mactaquac Hatchery.

Of the salmon released above Mactaquac, the occasional fish may fall back below the dam and be counted a second time. Counts in this report are not adjusted for fallback.

Salmon from the collection facilities at the dam are trucked to a holding pool attached to the secondary sorting facilities at the hatchery. Depending on the number of salmon available, they may be held overnight or longer before being counted through the secondary sorting facilities. Fish from the migration channel trap are normally removed just before or during a sorting operation. The dates shown in the tables are those when the fish were counted through the secondary sorting facilities.

In this report, the term "salmon" refers to fish which have spent one or more winters at sea before returning to home waters; i.e., it indicates both grilse or one-sea-winter (1SW) fish as well as older and larger multi-sea-winter including repeat spawning (MSW) fish. The sex of the fish was determined by external examination.

The number of fish of species other than Atlantic salmon were estimated when transferred from the brail pool to the hopper at the fish collection facilities of the dam (Fig. 3, Ingram 1980). Estimates are minimal as small fish are able to pass through the wire mesh of the hopper and barrier gates.

ACKNOWLEDGEMENTS

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Table 1. Operating periods and dates on which first and last 1SW and MSW salmon were taken at Mactaquac fish collection facilities and hatchery migration channel trap.

Mactaquac Dam fish collection facilities						
Year	Operating period	First fish taken		Last fish taken		
		1SW	MSW	1SW	MSW	
1983	16 May-27 Oct	23 Jun	02 Jun	26 Oct	26 Oct	
1984	13 May-27 Oct	25 Jun	26 May	26 Oct	26 Oct	
1985	13 May-29 Oct	22 Jun	22 May	29 Oct	29 Oct	
1986	13 May-27 Oct	20 Jun	19 May	27 Oct	27 Oct	
1987	12 May-28 Oct	20 Jun	15 May	27 Oct	26 Oct	
1988	09 May-26 Oct	19 Jun	23 May	25 Oct	25 Oct	

Hatchery migration channel trap						
Year	Operating period	First fish taken		Last fish taken		
		1SW	MSW	1SW	MSW	
1983	15 Jun-27 Oct	03 Jul	21 Jun	27 Oct	27 Oct	
1984	11 Jun-25 Oct	10 Jul	12 Jul	25 Oct	25 Oct	
1985	07 Jun-22 Oct	12 Jul	10 Jun	21 Oct	21 Oct	
1986	15 Jun-21 Oct	16 Jul	20 Jun	21 Oct	21 Oct	
1987	20 Jun-02 Nov	20 Jul	15 Jul	02 Nov	02 Nov	
1988	15 Jun-31 Oct	19 Jul	08 Jul	31 Oct	31 Oct	

Table 2. Semi-monthly totals of wild and hatchery LSW and MSW salmon passed through Mactaquac Hatchery, secondary sorting facilities (daily counts in Appendix A).

Semi-monthly period	Fish facilities at dam				Migration channel at hatchery				Totals	
	LSW		MSW		LSW		MSW		LSW	MSW
	Wild	Hatch.	Wild	Hatch.	Wild	Hatch.	Wild	Hatch.		
1983										
16-31 May	0	0	0	0	0	0	0	0	0	0
01-15 Jun	0	0	7	1	0	0	0	0	0	8
16-30 Jun	51	12	223	11	0	0	0	7	63	241
01-15 Jul	959	181	874	130	0	14	0	9	1,154	1,013
16-31 Jul	1,449	290	195	35	0	78	0	3	1,817	233
01-15 Aug	471	146	40	15	0	39	0	1	656	56
16-31 Aug	139	58	119	20	0	23	0	0	220	139
01-15 Sep	108	48	117	18	0	47	0	5	203	140
16-30 Sep	153	56	79	19	1	45	0	10	255	108
01-15 Oct	150	41	27	3	1	64	0	4	256	34
16-31 Oct	130	24	30	3	1	64	0	5	219	38
Totals	3,610	856	1,711	255	3	374	0	44	4,843	2,010
1984										
16-31 May	0	0	14	0	0	0	0	0	0	14
01-15 Jun	0	0	0	0	0	0	0	0	0	0
16-30 Jun	4	0	87	4	0	0	0	0	4	91
01-15 Jul	459	64	2,207	161	0	8	0	1	531	2,369
16-31 Jul	2,612	300	2,609	242	0	84	0	5	2,996	2,856
01-15 Aug	2,069	287	864	107	1	126	0	3	2,483	974
16-31 Aug	284	56	90	9	0	59	0	2	399	101
01-15 Sep	200	28	283	24	1	95	0	12	324	319
16-30 Sep	572	42	473	74	0	36	0	5	650	552
01-15 Oct	879	39	262	66	4	47	1	47	969	376
16-31 Oct	267	12	121	35	1	21	0	9	301	165
Totals	7,346	828	7,010	722	7	476	1	84	8,657	7,817

Table 2. Continued

Semi-monthly period	Fish facilities at dam				Migration channel at hatchery				Totals	
	LSW		MSW		LSW		MSW			
	Wild	Hatch.	Wild	Hatch.	Wild	Hatch.	Wild	Hatch.	LSW	MSW
1985										
16-31 May	0	0	81	12	0	0	0	0	0	93
01-15 Jun	0	0	205	22	0	0	0	0	0	228
16-30 Jun	0	0	274	24	0	0	0	0	0	313
01-15 Jul	487	67	2,854	236	0	1	0	3	555	3,093
16-31 Jul	2,341	403	1,457	102	0	81	0	17	2,825	1,576
01-15 Aug	1,431	337	372	26	0	88	0	4	1,856	402
16-31 Aug	314	203	102	10	0	47	0	0	564	112
01-15 Sep	177	93	333	19	0	85	0	1	355	353
16-30 Sep	249	119	394	34	0	61	0	6	429	434
01-15 Oct	215	43	181	8	0	23	0	3	281	192
16-31 Oct	117	25	137	5	0	70	0	23	212	165
Total	5,331	1,290	6,390	498	0	456	0	73	7,077	6,961
1986										
16-30 Jun	83	7	381	29	0	0	0	1	90	411
01-15 Jul	2,150	129	1,776	216	0	0	0	0	2,279	1,992
16-31 Jul	2,379	229	865	148	0	13	0	3	2,621	1,016
01-15 Aug	808	116	189	21	3	15	0	2	942	212
16-31 Aug	228	35	104	10	0	12	0	1	275	115
01-15 Sep	238	32	169	10	0	3	0	2	273	181
16-30 Sep	166	36	82	12	0	9	0	4	211	98
01-15 Oct	183	25	50	7	0	9	0	2	217	59
16-31 Oct	108	18	39	4	1	11	1	15	138	59
Total	6,343	627	3,655	457	4	72	1	30	7,046	4,143

Table 2. Continued

Semi-monthly period	Fish facilities at dam				Migration channel at hatchery				Totals	
	JSM		MSW		JSM		MSW		JSM	MSW
	Wild	Hatch.	Wild	Hatch.	Wild	Hatch.	Wild	Hatch.		
1987										
01-15 Jun	0	0	47	2	0	0	0	0	0	49
16-30 Jun	216	23	769	37	0	0	0	0	239	806
01-15 Jul	1,984	722	1,181	131	0	15	0	1	2,721	1,313
16-31 Jul	1,517	774	420	65	0	9	0	0	2,300	485
01-15 Aug	495	367	135	29	0	14	0	0	876	164
16-31 Aug	223	211	75	12	0	41	0	1	475	88
01-15 Sep	187	175	209	31	0	17	0	0	379	240
16-30 Sep	295	239	150	22	0	55	0	1	589	173
01-15 Oct	160	148	92	6	0	22	0	1	330	99
16-31 Oct	18	20	10	3	0	25	0	0	63	13
01-15 Nov	10	5	3	1	1	12	0	1	28	5
Totals	5,105	2,684	3,091	339	1	210	0	5	8,000	3,435
1988										
01-15 Jun	0	0	42	13	0	0	0	0	0	55
16-30 Jun	105	10	413	68	0	0	0	0	115	481
01-15 Jul	2,159	256	724	265	0	0	0	1	2,415	990
16-31 Jul	3,864	471	432	139	0	15	0	7	4,350	578
01-15 Aug	428	74	34	16	0	12	0	0	514	50
16-31 Aug	323	61	67	27	0	32	0	6	416	100
01-15 Sep	437	40	91	39	0	15	0	6	492	136
15-30 Sep	404	56	74	19	0	3	0	3	463	96
01-15 Oct	260	33	40	18	0	17	0	6	310	64
16-30 Oct	82	8	13	9	0	26	0	28	116	50
Totals	8,062	1,009	1,930	613	0	120	0	57	9,191	2,600

Table 3. Distribution summary of wild and hatchery, male and female, 1SW and MSW salmon from Mactaquac secondary sorting facilities.

Distribution	1SW				MSW				Totals	
	Wild	Female	Hatchery	Female	Wild	Female	Hatchery	Female	1SW	MSW
1983										
Released:										
- Mainstem/Woodstock	1,761	51	520	22	33	334	3	31	2,354	401
- Tobique R./Arthurette	1,683	64	496	27	86	1,083	9	91	2,270	1,269
- Tobique R.-Riley Bk.	51	0	51	0	3	47	0	10	102	60
- Aroostook R.	0	0	32	2	0	0	0	0	34	0
Retained for broodstock	0	0	0	0	45	74	37	111	0	267
Mortalities and others	3	0	80	0	4	2	6	1	83	13
Totals	3,498	115	1,179	51	171	1,540	55	244	4,843	2,010
1984										
Released:										
- Mainstem/Woodstock	2,421	88	398	5	104	1,064	18	108	2,912	1,294
- Tobique R./Arthurette	4,524	141	794	19	445	4,906	82	321	5,478	5,754
- Tobique R.-Serpentine	0	0	0	0	5	2	0	0	0	7
- Aroostook R.	0	0	46	12	0	0	7	22	58	29
- Salmon R., Vic. Co.	163	16	20	1	15	203	9	29	200	256
Retained for broodstock	0	0	0	0	91	170	77	125	0	463
Mortalities and others	0	0	8	1	2	4	4	4	9	14
Totals	7,108	245	1,266	38	662	6,349	197	609	8,657	7,817
1985										
Released:										
- Mainstem/Woodstock	2,055	89	737	33	124	1,066	18	70	2,914	1,278
- Tobique R./Arthurette	3,031	156	880	22	620	4,105	69	274	4,089	5,068
- Aroostook R.	0	0	65	0	0	0	4	20	65	24
- Tributaries-see Table 6	0	0	0	0	67	70	11	10	0	158
Retained for broodstock	0	0	0	0	57	190	25	49	0	321
Mortalities and others	0	0	8	1	53	38	10	11	9	112
Totals	5,086	245	1,690	56	921	5,469	137	434	7,077	6,961
1986										
Released:										
- Mainstem/Woodstock	2,513	185	292	5	92	494	31	52	2,995	669
- Tobique R./Arthurette	3,468	179	341	5	235	2,446	82	229	3,993	2,992
- Aroostook R.	0	0	50	0	0	0	0	0	50	0
- Keswick R.	0	0	0	0	6	8	8	6	0	28
Retained for broodstock	0	0	0	0	104	240	17	41	0	402
Mortalities and others	0	2	6	0	6	25	10	11	8	52
Totals	5,981	366	689	10	443	3,213	148	339	7,046	4,143
1987										
Released:										
- Mainstem/Woodstock	1,735	240	1,294	32	50	519	14	53	3,301	636
- Tobique R./Arthurette	2,787	309	1,449	32	138	1,882	25	123	4,577	2,168
- Tobique R.-Browns Flat	18	5	0	0	30	41	18	18	23	107
- Aroostook R.	0	0	75	2	0	1	0	8	77	9
- Keswick R.	0	0	0	0	0	0	3	2	0	5
Retained for broodstock	11	0	0	0	83	291	21	32	11	427
Mortalities and others	1	0	10	0	23	33	12	15	11	83
Totals	4,552	554	2,828	66	324	2,767	93	251	8,000	3,435
1988										
Released:										
- Mainstem/Woodstock	3,203	243	459	14	26	345	30	141	3,919	542
- Tobique R./Arthurette	4,194	323	624	20	61	1,226	38	361	5,161	1,686
- Aroostook R.	65	1	4	0	3	22	1	4	70	30
Retained for broodstock	26	0	5	0	47	159	32	44	31	282
Mortalities and others	7	0	3	0	11	30	9	10	10	60
Totals	7,495	567	1,095	34	148	1,782	110	560	9,191	2,600

Table 4. Semi-monthly totals of wild and hatchery, male and female, 1SW and MSW salmon released at Woodstock dumpsite (daily numbers in Appendix B).

Semi-monthly period	1SW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		1SW	MSW
	Male	Female	Male	Female	Male	Female	Male	Female		
1983										
01-15 Jul	541	0	21	0	23	190	1	7	562	221
16-31 Jul	691	3	150	0	3	37	0	0	847	40
01-15 Aug	140	10	56	6	0	8	0	5	212	13
16-31 Aug	171	13	102	3	2	16	0	3	289	21
01-15 Sep	73	6	57	6	4	41	1	7	142	53
16-30 Sep	57	6	60	4	0	29	1	5	127	35
01-15 Oct	57	6	45	2	1	7	0	1	110	9
16-31 Oct	28	7	29	1	0	6	0	3	65	9
Totals	1,761	51	520	22	33	334	3	31	2,354	401
1984										
01-15 Jul	40	1	13	0	13	223	1	7	54	244
16-31 Jul	1,313	44	200	4	29	360	3	32	1,561	424
01-15 Aug	673	16	102	0	22	190	2	22	791	236
16-31 Aug	0	0	0	0	0	0	0	0	0	0
01-15 Sep	0	0	0	0	0	0	0	0	0	0
16-30 Sep	241	15	63	0	29	183	3	15	319	230
01-15 Oct	0	0	0	0	0	0	0	0	0	0
16-31 Oct	154	12	20	1	11	108	9	32	187	160
Totals	2,421	88	398	5	104	1,064	18	108	2,912	1,294
1985										
01-15 Jul	136	0	16	0	39	400	6	22	152	467
16-31 Jul	1,005	30	178	7	38	232	4	16	1,220	290
01-15 Aug	423	18	147	3	6	101	3	8	591	118
16-31 Aug	88	5	95	3	0	15	2	1	191	18
01-15 Sep	157	12	146	13	9	91	1	3	328	104
16-30 Sep	0	0	0	0	0	0	0	0	0	0
01-15 Oct	62	7	40	2	19	96	1	5	111	121
16-31 Oct	184	17	115	5	13	131	1	15	321	160
Totals	2,055	89	737	33	124	1,066	18	70	2,914	1,278
1986										
16-30 Jul	9	0	3	0	8	57	1	4	12	70
01-15 Jul	810	46	43	0	23	212	4	18	899	257
16-31 Jul	926	18	82	0	14	107	7	14	1,026	142
01-15 Aug	366	17	61	1	0	18	2	1	445	21
16-31 Aug	0	0	0	0	0	0	0	0	0	0
01-15 Sep	106	19	17	0	2	42	1	3	142	48
16-30 Sep	71	18	20	0	3	12	1	3	109	19
01-15 Oct	142	41	31	1	10	29	4	3	215	46
16-31 Oct	79	26	20	2	2	11	2	4	127	19
01-15 Nov	4	0	15	1	30	6	9	2	20	47
Totals	2,513	185	292	5	92	494	31	52	2,995	669

Table 4. (Cont'd)

Semi-monthly period	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	Male	Female	Male	Female	Male	Female	Male	Female		
1987										
01-15 Jul	685	44	322	5	24	276	4	23	1,056	327
16-31 Jul	605	38	367	3	6	94	2	9	1,013	111
01-15 Aug	106	24	103	1	0	43	1	6	234	50
16-31 Aug	168	33	222	1	0	0	0	0	424	0
01-15 Sep	41	30	58	5	11	76	3	11	134	101
16-30 Sep	18	14	26	0	0	12	0	2	58	14
01-15 Oct	82	45	106	9	3	14	0	2	242	19
16-31 Oct	18	5	62	7	0	1	0	0	92	1
01-15 Nov	12	7	28	1	6	3	4	0	48	13
Totals	1,735	240	1,294	32	50	519	14	53	3,301	636
1988										
16-30 Jun	20	2	2	0	5	63	1	6	24	75
01-15 Jul	737	29	90	1	2	112	1	41	857	156
16-31 Jul	1,706	99	210	5	5	107	9	41	2,020	162
01-15 Aug	369	16	72	0	0	0	0	0	457	0
16-31 Aug	0	0	0	0	0	0	0	0	0	0
01-15 Sep	181	55	27	1	0	45	3	18	264	66
16-30 Sep	0	0	0	0	0	0	0	0	0	0
01-15 Oct	126	24	29	2	0	8	0	8	181	16
16-31 Oct	60	16	17	2	0	8	0	15	95	23
01-15 Nov	4	2	12	3	14	2	16	12	21	44
Totals	3,203	243	459	14	26	345	30	141	3,919	542

Table 5. Semi-monthly totals of wild and hatchery, male and female, 1SW and MSW salmon released at Tobique dumpsite (daily numbers in Appendix C).

Semi-monthly period	1SW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		1SW	MSW
	Male	Female	Male	Female	Male	Female	Male	Female		
1983										
16-30 Jun	48	1	11	0	9	97	2	10	60	118
01-15 Jul	366	3	39	1	35	560	3	51	409	649
16-31 Jul	735	14	189	13	23	189	0	1	951	213
01-15 Aug	245	16	76	6	0	24	0	0	343	24
16-31 Aug	12	2	6	0	4	99	0	7	20	110
01-15 Sep	28	2	27	3	5	48	2	5	60	60
16-30 Sep	0	0	0	0	0	0	0	0	0	0
01-15 Oct	163	16	91	3	4	21	1	2	273	28
16-31 Oct	86	10	57	1	1	16	0	3	154	20
01-15 Nov	0	0	0	0	5	29	1	12	0	47
Totals	1,683	64	496	27	86	1,083	9	91	2,270	1,269
1984										
30-16 Jun	4	0	0	0	13	41	1	1	4	56
01-15 Jul	376	21	51	2	137	1,654	19	56	450	1,866
16-31 Jul	1,017	24	140	3	137	1,927	8	150	1,184	2,222
01-15 Aug	1,539	20	254	4	65	738	11	76	1,817	890
16-31 Aug	324	15	148	4	12	110	3	12	491	137
01-15 Sep	145	6	87	4	10	164	5	15	242	194
16-30 Sep	256	8	33	0	32	207	4	11	297	254
01-15 Oct	495	26	42	1	2	21	0	0	564	23
16-31 Oct	368	21	39	1	0	1	0	0	429	1
01-15 Nov	0	0	0	0	37	43	31	0	0	111
Totals	4,524	141	794	19	445	4,906	82	321	5,478	5,754
1985										
16-31 May	0	0	0	0	19	40	0	5	0	64
01-15 Jun	0	0	0	0	41	158	4	14	0	217
16-30 Jun	0	0	0	0	43	142	5	21	0	211
01-15 Jul	255	12	40	1	243	1,976	30	128	308	2,377
16-31 Jul	1,184	30	254	1	177	907	21	56	1,469	1,161
01-15 Aug	1,094	71	279	7	25	382	2	21	1,451	430
16-31 Aug	209	15	129	6	4	64	1	2	359	71
01-15 Sep	8	1	9	1	16	191	1	5	19	213
16-30 Sep	163	15	132	4	41	192	4	20	314	257
01-15 Oct	118	12	37	2	11	53	1	2	169	67
16-31 Oct	0	0	0	0	0	0	0	0	0	0
Totals	3,031	156	880	22	620	4,105	69	274	4,089	5,068
1986										
16-30 Jun	44	0	1	0	3	175	4	13	45	195
01-15 Jul	1,239	49	69	2	118	1,353	34	115	1,359	1,620
16-31 Jul	1,315	61	127	0	88	551	35	64	1,503	738
01-15 Aug	502	19	68	0	17	164	4	20	589	205
16-31 Aug	218	10	42	0	1	88	3	8	270	100
01-15 Sep	86	27	13	2	2	79	0	4	128	85
16-30 Sep	64	13	21	1	6	36	2	5	99	49
01-15 Oct	0	0	0	0	0	0	0	0	0	0
16-31 Oct	0	0	0	0	0	0	0	0	0	0
Totals	3,468	179	341	5	235	2,446	82	229	3,993	2,992

Table 5. (Cont'd)

Semi-monthly period	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		Totals	
	Male	Female	Male	Female	Male	Female	Male	Female	LSW	MSW
1987										
16-30 Jun	204	12	23	0	62	582	6	14	239	664
01-15 Jul	1,111	48	352	4	46	664	4	33	1,515	747
16-31 Jul	880	54	408	1	6	290	4	41	1,343	341
01-15 Aug	327	40	268	4	3	89	4	11	639	107
16-31 Aug	0	0	0	0	1	37	0	6	0	44
01-15 Sep	80	35	134	7	11	125	7	11	256	154
16-30 Sep	166	98	221	14	9	87	0	7	499	103
01-15 Oct	19	22	43	2	0	8	0	0	86	8
Totals	2,787	309	1,449	32	138	1,882	25	123	4,577	2,168
1988										
01-15 Jun	0	0	0	0	2	13	3	6	0	24
16-30 Jun	42	2	4	0	15	226	4	35	48	280
01-15 Jul	989	33	119	1	27	479	11	150	1,142	667
16-31 Jul	2,147	92	282	3	13	294	11	91	2,524	409
01-15 Aug	155	19	36	1	1	48	1	18	211	68
16-31 Aug	277	46	88	5	0	65	4	27	416	96
01-15 Sep	167	34	24	3	1	25	1	14	228	41
16-30 Sep	330	74	54	5	2	34	1	11	463	48
01-15 Oct	87	23	17	2	0	22	0	6	129	28
16-31 Oct	0	0	0	0	0	0	0	0	0	0
01-15 Nov	0	0	0	0	0	20	2	3	0	25
Totals	4,194	323	624	20	61	1,226	38	361	5,161	1,686

Table 6. Distributions of wild and hatchery, male and female, LSW and MSW salmon from Mactaquac into Saint John River tributaries.

Distribution	Date	LSW				MSW				Totals	
		Wild		Hatchery		Wild		Hatchery			
		M	F	M	F	M	F	M	F	LSW	MSW
1983											
Aroostook R.	14 Oct	0	0	32	2	0	0	0	0	34	0
Tobique R.											
Riley Br.	30 Jun	0	0	0	0	3	47	0	0	0	50
	14 Jul	50	0	28	0	0	0	0	0	78	0
	25 Jul	1	0	23	0	0	0	0	10	24	10
Total Riley Br.		51	0	51	0	3	47	0	10	102	60
1984											
Aroostook R.	08 Aug	0	0	32	8	0	0	5	17	40	22
	09 Oct	0	0	14	4	0	0	2	5	18	7
Total Aroostook R. 0			46	12	0	0	7	22	58	29	
Salmon R. Vic. Co.,											
	01 Oct	39	3	4	0	3	21	0	0	46	24
	02 Oct	57	2	0	0	1	18	2	3	59	24
	03 Oct	42	10	12	1	0	32	0	0	65	32
	04 Oct	25	1	4	0	2	27	0	1	30	30
	10 Oct	0	0	0	0	5	37	1	7	0	50
	15 Oct	0	0	0	0	1	39	1	9	0	50
	17 Oct	0	0	0	0	3	29	5	9	0	46
Total Salmon R.		163	16	20	1	15	203	9	29	200	256
Tobique R.											
Serpentine R.	02 Jun	0	0	0	0	5	2	0	0	0	7

Table 6. (Continued)

Distribution	Date	ISW						MSW						Totals			
		Wild		Hatchery		Wild		Hatchery		ISW	MSW						
		M	F	M	F	M	F	M	F								
1985																	
Aroostook R.	01 Aug	0	0	0	0	0	20	0	0	0	0	4	18	20	22	0	22
	13 Sep	0	0	0	0	0	40	0	0	0	0	0	0	40	0	0	0
	21 Oct	0	0	0	0	0	5	0	0	0	0	0	2	5	2	2	2
Total Aroostook R.		0	0	0	0	0	65	0	0	0	0	4	20	65	24	24	24
Becaguimec R.	06 Nov	0	0	0	0	0	0	0	0	0	0	10	9	0	120	0	120
Nackawic R.	06 Nov	0	0	0	0	0	0	0	0	0	0	1	1	0	26	0	26
Salmon R., Vic. Co.	06 Nov	0	0	0	0	0	0	0	0	0	0	0	0	0	12	0	12
1986																	
Aroostook R.	19 Aug	0	0	0	0	0	50	0	0	0	0	0	0	50	0	0	0
Keswick R.	02 Nov	0	0	0	0	0	0	0	0	0	0	8	6	0	28	0	28
1987																	
Aroostook R.	20 Aug	0	0	0	0	0	54	1	0	0	0	0	0	55	0	0	0
	06 Nov	0	0	0	0	0	21	1	0	0	0	0	8	22	9	9	9
Total Aroostook R.		0	0	0	0	0	75	2	0	0	0	0	8	77	9	9	9
Keswick R.	16 Nov	0	0	0	0	0	0	0	0	0	0	3	2	0	5	5	5
Tobique R. at Browns Flat	12 Nov	1	1	0	0	0	0	0	0	0	0	12	13	2	69	2	69
	13 Nov	17	4	0	0	0	0	0	0	0	0	6	5	21	38	38	38
Total Browns Flat		18	5	0	0	0	0	0	0	0	0	18	18	23	107	107	107
1988																	
Aroostook R.	29 Jul	65	1	4	0	0	0	0	3	22	1	4	70	30			

Table 7. Numbers and periods of capture of wild and hatchery, male and female, 1SW and MSW salmon collected at Mactaquac for use as broodstock.

Collection	1SW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery			
	M	F	M	F	M	F	M	F	1SW	MSW
1983										
Summer										
(14 Jun-30 Aug)	0	0	0	0	26	49	25	92	0	192
Fall										
(01 Sep-20 Oct)	0	0	0	0	19	25	12	19	0	75
Totals	0	0	0	0	45	74	37	111	0	267
1984										
Summer										
(31 May-13 Aug)	0	0	0	0	60	67	36	57	0	220
Fall										
(10 Sep-19 Oct)	0	0	0	0	31	103	41	68	0	243
Totals	0	0	0	0	91	170	77	125	0	463
1985										
Summer										
(31 May-22 Aug)	0	0	0	0	4	60	10	27	0	101
Fall										
(10 Sep-30 Oct)	0	0	0	0	53	130	15	22	0	220
Totals	0	0	0	0	57	190	25	49	0	321
1986										
Summer										
(20 Jun-26 Aug)	0	0	0	0	89	181	14	30	0	314
Fall										
(03 Sep-29 Oct)	0	0	0	0	15	59	3	11	0	88
Totals	0	0	0	0	104	240	17	41	0	402
1987										
Summer										
(01 Jun-28 Aug)	11	0	0	0	81	195	11	21	11	308
Fall										
(14 Sep-23 Oct)	0	0	0	0	2	96	10	11	0	119
Totals	11	0	0	0	83	291	21	32	11	427
1988										
Summer										
(07 Jun-30 Aug)	26	0	5	0	40	123	15	38	31	216
Fall										
(07 Sep-24 Oct)	0	0	0	0	7	36	17	6	0	66
Totals	26	0	5	0	47	159	32	44	31	282

Table 8. Losses of male and female, LSW and MSW salmon from broodstock, experimental and upriver distribution after sorting at Nactaquac.

Date	Details	LSW				MSW					
		Wild		Hatchery		Wild		Hatchery			
		M	F	M	F	M	F	M	F		
1983											
02 Aug	Woodstock Exhibition	3	0	0	0	0	0	0	0	3	0
07 Aug	Broodstock	0	0	0	0	1	0	0	1	0	2
19 Aug	Broodstock	0	0	0	0	1	0	0	0	0	1
12 Jul	Oromocto Indian Band	0	0	75	0	0	0	0	0	75	0
04 Aug	Atlantic Sea Run Salmon Comm.	0	0	5	0	0	0	0	0	5	0
03 Oct	Holding pond	0	0	0	0	0	1	0	0	0	1
27 Oct	Broodstock	0	0	0	0	1	0	0	0	0	1
Oct-Nov	During spawning	0	0	0	0	1	1	6	0	0	1
	Totals	3	0	80	0	4	2	6	1	83	13
1984											
12 Jul	Experimental	0	0	2	0	0	0	0	1	2	1
26 Jul	Experimental	0	0	1	0	0	0	0	1	1	1
07 Aug	Experimental	0	0	4	1	0	0	0	0	5	0
09 Aug	Holding pond	0	0	1	0	1	0	0	0	1	1
07 Oct	Broodstock	0	0	0	0	0	1	0	0	0	1
28 Oct	Broodstock	0	0	0	0	0	0	1	0	0	1
Oct-Nov	During spawning	0	0	0	0	1	3	3	2	0	1
	Totals	0	0	8	1	2	4	4	4	9	14
1985											
30 May	Broodstock	0	0	0	0	0	1	0	0	0	1
05 Jul	Broodstock	0	0	0	0	0	1	0	0	0	1
07 Jul	Brail	0	0	0	0	1	0	0	0	0	1
08 Jul	Broodstock	0	0	0	0	0	0	0	1	0	1
08 Jul	Holding pond	0	0	0	0	0	2	1	0	0	3
10 Jul	Experimental	0	0	0	0	0	0	2	3	0	5
14 Jul	Broodstock	0	0	0	0	1	0	0	0	0	1
15 Jul	Broodstock	0	0	0	0	2	0	0	0	0	2

Table 9. Annual estimated counts of larger¹ fish and species other than Atlantic salmon ascending Mactaquac fish collection facilities, (semi-counts in Appendix D).

Species		Numbers of fish					
Scientific name	Common name	1983	1984	1985	1986	1987	1988
<i>Alosa pseudoharengus</i>	Alewife ² -into headpond -taken commercially	580,300 881,728	477,900 1,244,866	822,700 3,174,749	1,293,000 0	1,619,500 4,713,207	2,218,000 4,235,390
<i>Alosa sapidissima</i>	Shad-into headpond -taken commercial	241 200	246 127	155 730	406 0	44 565	69 1,775
<i>Coregonus clupeaformis</i>	Lake whitefish	0	17	17	67	68	14
<i>Esox niger</i>	Chain pickerel	2	3	0	1	0	1
<i>Micropterus dolomieu</i>	Smallmouth bass	3	7	2	4	10	11
<i>Roccus saxatilis</i>	Striped bass	22	12	32	15	80	20
<i>Salmo salar</i>	Sebago (landlocked salmon)	44	17	6	5	15	310
<i>Oncorhynchus kisutch</i>	Coho salmon	0	0	0	3	0	0
<i>Salmo trutta</i>	Brown trout	4	2	7	22	2	8
<i>Oncorhynchus mykiss</i>	Rainbow trout	2	2	0	0	0	0
<i>Salvelinus fontinalis</i>	Brook trout	93	41	6	10	21	34
<i>Salvelinus namaycush</i>	Lake trout	0	0	1	0	0	0

¹ Fish, such as eels and small perch, which pass through the wire-mesh openings of the facilities, are not counted.

² For breakdown of alewife and blueback herring, see Table 10.

Table 10. Estimated semi-monthly and annual totals of alewives and blueback herring released into the headpond and taken commercially from Mactaquac Dam fish collection facilities¹.

Year	Time period	Released in headpond		Taken commercially	
		Alewife	Blueback	Alewife	Blueback
1983	16-31 May	106,700			
	01-15 Jun	244,050	107,572	174,376	175,017
	16-30 Jun	-	21,978	72,820	459,515
	01-15 Jul	-	-	-	-
	Totals	450,750	129,550	247,196	634,532
1984	16-31 May	95,335	20	583,998	3,631
	01-15 Jun	54,120	80,925	96,370	227,633
	16-30 Jun	14,034	173,965	39,988	293,246
	01-15 Jul	15,466	14,035	-	-
	Totals	178,955	268,945	720,356	524,510
1985	16-31 May	525,456	51,544	-	-
	01-15 Jun	59,362	46,138	205,302	1,511,794
	16-30 Jun	550	93,950	20,640	1,309,032
	01-15 Jul	690	45,010	2,560	125,421
	Totals	586,058	236,642	228,502	2,946,247
1986	01-15 May	108,500	-	-	-
	16-31 May	819,854	9,646	-	-
	01-15 Jun	202,265	152,735	-	-
	16-30 Jun	-	-	-	-
	Totals	1,130,619	162,381	-	-
1987	01-15 May	299,500	-	-	-
	16-31 May	1,277,106	42,894	-	-
	01-15 Jun	-	-	400,957	1,321,080
	16-30 Jun	-	-	41,190	2,949,980
	Totals	1,576,606	42,894	442,147	4,271,060
1988	01-15 May	616,500	-	-	-
	16-31 May	1,492,708	108,792	245,450	183,823
	01-15 Jun	-	-	300,564	2,619,522
	16-30 Jun	-	-	11,037	874,994
	Totals	2,109,208	108,792	557,051	3,678,339

¹ Data obtained from B.M. Jessop, Biologist, Freshwater and Anadromous Division, Biological Sciences Branch, Halifax, N.S. B3J 2S7.

APPENDIX A

DAILY ATLANTIC SALMON COUNTS,
MACTAQUAC HATCHERY
SECONDARY SORTING FACILITIES

Numbers include 1SW and MSW salmon of wild and hatchery origins, taken at both the Mactaquac Dam collection facilities and the Mactaquac Hatchery migration channel. Dates are those during which the fish were processed through the secondary sorting facilities and not necessarily the dates on which they were first recovered.

Table A-1. Mactaquac daily counts of wild and hatchery, LSW and MSW salmon in 1983.

1983 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery			
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
<u>June</u>										
14	0	7	0	1	0	0	0	0	0	8
20	0	13	0	0	0	0	0	0	0	13
21	0	5	0	0	0	0	0	1	0	6
24	3	39	0	2	0	0	0	5	3	46
27	12	60	6	3	0	0	0	0	18	63
28	17	56	1	4	0	0	0	0	18	60
29	17	39	4	2	0	0	0	0	21	41
30	2	11	1	0	0	0	0	1	3	12
<u>July</u>										
3	136	258	21	34	0	0	1	0	158	292
4	101	217	27	22	0	0	0	0	128	239
5	34	38	11	4	0	0	0	0	45	42
6	36	48	12	13	0	0	0	0	48	61
7	27	15	17	2	0	0	1	4	45	21
11	202	128	40	28	0	0	11	5	253	161
12	140	75	12	10	0	0	1	0	153	85
13	84	36	11	6	0	0	0	0	95	42
14	118	44	21	5	0	0	0	0	139	49
15	81	15	9	6	0	0	0	0	90	21
18	262	68	51	10	0	0	23	1	336	79
19	128	19	6	2	0	0	0	0	134	21
20	105	8	12	1	0	0	9	1	120	10
21	195	16	34	4	0	0	0	0	229	20
22	102	4	20	3	0	0	0	0	128	7
25	246	30	59	5	0	0	25	0	330	35
27	196	37	57	5	0	0	16	1	269	43
28	128	10	37	3	0	0	0	0	165	13
29	87	3	14	2	0	0	5	0	106	5
<u>August</u>										
2	261	25	79	5	0	0	6	1	346	31
4	48	3	12	2	0	0	15	0	75	5
9	102	4	29	4	0	0	10	0	141	8
15	60	8	26	4	0	0	8	0	94	12
19	46	10	22	2	0	0	9	0	77	12
22	9	2	5	1	0	0	2	0	16	3
29	70	93	26	16	0	0	10	0	106	109
30	14	14	5	1	0	0	2	0	21	15

Table A-1. (Continued)

1983 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery		Totals	
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
<u>September</u>										
1	26	51	12	7	0	0	5	0	43	58
2	4	10	5	3	0	0	8	0	17	13
6	66	49	29	8	0	0	15	3	110	60
13	12	7	2	0	0	0	19	2	33	9
26	62	40	27	13	1	0	38	7	128	60
29	85	36	26	5	0	0	4	3	115	44
30	6	3	3	1	0	0	3	0	12	4
<u>October</u>										
6	62	14	20	2	1	0	27	1	110	17
11	37	5	13	1	0	0	29	3	79	9
13	51	8	8	0	0	0	8	0	67	8
17	69	19	15	2	0	0	29	2	113	23
20	27	5	3	0	0	0	11	1	41	6
27	34	6	6	1	1	0	24	2	65	9
<u>Totals</u>										
	3,610	1,711	856	255	3	0	374	44	4,843	2,010

Table A-2. Mactaquac daily counts of wild and hatchery, 1SW and MSW salmon in 1984.

1984 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery			
	1SW	MSW	1SW	MSW	1SW	MSW	1SW	MSW	1SW	MSW
May										
31	0	14	0	0	0	0	0	0	0	14
June										
21	0	21	0	0	0	0	0	0	0	21
22	0	3	0	0	0	0	0	0	0	3
26	0	38	0	3	0	0	0	0	0	41
27	4	18	0	1	0	0	0	0	4	19
28	0	7	0	0	0	0	0	0	0	7
July										
3	11	100	0	8	0	0	0	0	11	108
4	12	128	0	10	0	0	0	0	12	138
5	11	179	1	10	0	0	0	0	12	189
6	14	124	6	6	0	0	0	0	20	130
7	41	327	9	36	0	0	0	0	50	363
9	13	141	9	10	0	0	0	0	22	151
10	62	384	12	24	0	0	2	0	76	408
11	68	210	7	14	0	0	0	0	75	224
12	49	172	2	13	0	0	4	1	55	186
13	68	215	8	12	0	0	2	0	78	227
14	110	227	10	18	0	0	0	0	120	245
16	420	532	34	49	0	0	0	0	454	581
17	259	256	33	24	0	0	6	0	298	280
18	68	60	12	8	0	0	0	0	80	68
19	42	37	8	2	0	0	4	0	54	39
20	82	70	15	8	0	0	1	0	98	78
21	187	227	20	16	0	0	0	0	207	243
23	341	246	24	27	0	0	32	3	397	276
24	294	243	40	19	0	0	0	0	334	262
25	207	296	28	23	0	0	9	2	244	321
26	123	105	29	14	0	0	13	0	165	119
27	109	86	11	8	0	0	9	0	129	94
30	221	304	25	30	0	0	10	0	256	334
31	259	147	21	14	0	0	0	0	280	161
August										
1	320	157	39	22	0	0	13	1	372	180
2	164	108	16	10	0	0	10	0	190	118
3	135	62	20	10	0	0	5	1	160	73
7	390	175	67	13	0	0	9	1	466	189
8	427	105	54	21	0	0	18	0	499	126
9	218	66	29	12	0	0	6	0	253	78
10	57	14	11	3	0	0	6	0	74	17
13	301	144	36	13	1	0	28	0	366	157
15	57	33	15	3	0	0	31	0	103	36
17	66	19	9	1	0	0	17	1	92	21
23	80	15	18	0	0	0	16	1	114	16
27	78	33	19	8	0	0	13	0	110	41

Table A-2. (Continued)

1984 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery			
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
30	45	18	9	0	0	0	8	0	62	18
31	15	5	1	0	0	0	5	0	21	5
<u>September</u>										
6	64	54	15	8	0	0	30	2	109	64
7	5	3	0	0	0	0	8	1	13	4
10	79	130	5	8	1	0	36	3	121	141
14	52	96	8	8	0	0	21	6	81	110
17	181	171	17	19	0	0	0	0	198	190
18	46	70	0	13	0	0	13	1	59	84
19	37	23	1	4	0	0	3	0	41	27
24	124	98	8	24	0	0	17	4	149	126
26	184	111	16	14	0	0	3	0	203	125
<u>October</u>										
1	49	35	3	6	0	0	4	1	56	42
3	73	43	5	8	0	0	0	0	78	51
4	89	41	5	8	0	0	0	0	94	49
5	165	41	9	9	0	0	0	0	174	50
9	24	11	1	4	1	1	20	12	46	28
10	194	34	8	10	1	0	3	10	206	54
11	90	13	2	7	0	0	1	3	93	23
12	52	6	3	3	0	0	5	3	60	12
15	143	38	3	11	2	0	14	18	162	67
16	61	21	0	9	0	0	1	3	62	33
17	57	19	6	4	0	0	5	1	68	24
19	48	26	1	4	0	0	3	1	52	31
22	27	18	2	3	0	0	3	0	32	21
25	59	22	3	7	1	0	3	1	66	30
29	15	15	0	8	0	0	6	3	21	26
Totals	7,346	7,010	828	722	7	1	476	84	8,657	7,817

Table A-3. Mactaquac daily counts of wild and hatchery, LSW and MSW salmon in 1985.

1985 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery			
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
May										
29	0	14	0	5	0	0	0	0	0	19
30	0	67	0	7	0	0	0	0	0	74
June										
3	0	115	0	15	0	0	0	0	0	130
10	0	90	0	7	0	0	0	1	0	98
17	0	68	0	3	0	0	0	7	0	78
19	0	12	0	0	0	0	0	3	0	15
24	0	111	0	12	0	0	0	4	0	127
28	0	83	0	9	0	0	0	1	0	93
July										
2	8	337	3	30	0	0	0	0	11	367
3	9	465	0	20	0	0	0	2	9	487
4	17	292	1	16	0	0	0	0	18	308
5	24	178	2	21	0	0	0	0	26	199
6	31	203	2	24	0	0	0	0	33	227
8	53	351	11	30	0	0	0	1	64	382
9	13	126	2	12	0	0	0	0	15	138
10	29	66	6	6	0	0	0	0	35	72
12	29	179	6	17	0	0	1	0	36	196
13	86	277	10	27	0	0	0	0	96	304
14	103	214	13	20	0	0	0	0	116	234
15	85	166	11	13	0	0	0	0	96	179
16	72	143	9	13	0	0	0	0	81	156
17	101	274	16	19	0	0	5	3	122	296
18	49	36	5	4	0	0	0	0	54	40
19	101	124	30	12	0	0	6	2	137	138
22	347	238	68	22	0	0	0	0	415	260
23	271	139	39	7	0	0	17	6	327	152
24	144	74	27	4	0	0	11	2	182	80
25	107	45	22	2	0	0	0	0	129	47
26	189	70	28	5	0	0	24	2	241	77
28	264	76	56	4	0	0	0	0	320	80
29	271	93	31	1	0	0	0	0	302	94
30	251	86	42	4	0	0	15	2	308	92
31	174	59	30	5	0	0	3	0	207	64
August										
1	72	20	26	1	0	0	18	0	116	21
2	150	61	42	6	0	0	0	0	192	67
6	500	124	85	9	0	0	30	2	615	135
7	400	88	61	6	0	0	0	0	461	94
9	85	12	32	1	0	0	18	1	135	14

Table A-3. (Continued)

1985 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery		Totals	
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
13	85	30	43	1	0	0	0	0	128	31
14	139	37	48	2	0	0	22	1	209	40
16	59	5	32	1	0	0	7	0	98	6
20	122	42	72	2	0	0	11	0	205	44
22	35	10	6	2	0	0	1	0	42	12
27	67	35	45	3	0	0	7	0	119	38
29	31	10	48	2	0	0	21	0	100	12
<u>September</u>										
4	54	83	29	4	0	0	22	0	105	87
5	6	16	14	0	0	0	12	0	32	16
10	8	15	5	2	0	0	46	1	59	18
11	109	219	45	13	0	0	5	0	159	232
17	95	131	43	12	0	0	33	3	171	146
18	31	32	11	1	0	0	0	0	42	33
24	47	89	27	12	0	0	16	1	90	102
25	6	10	6	0	0	0	1	0	13	10
30	70	132	32	9	0	0	11	2	113	143
<u>October</u>										
4	54	32	14	2	0	0	0	0	68	34
8	77	54	19	1	0	0	8	1	104	56
15	84	95	10	5	0	0	15	2	109	102
16	32	30	8	1	0	0	1	0	41	31
21	44	49	10	2	0	0	0	1	54	52
26	24	30	4	1	0	0	69	22	97	53
30	17	28	3	1	0	0	0	0	20	29
Totals	5,331	6,390	1,290	498	0	0	456	73	7,077	6,961

Table A-4. Mactaquac daily counts of wild and hatchery, 1SW and MSW salmon in 1986.

1986 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery			
	1SW	MSW	1SW	MSW	1SW	MSW	1SW	MSW	1SW	MSW
<u>June</u>										
20	0	40	0	3	0	0	0	1	0	44
23	4	37	0	6	0	0	0	0	4	43
25	9	67	3	5	0	0	0	0	12	72
30	70	237	4	15	0	0	0	0	74	252
<u>July</u>										
2	95	263	8	20	0	0	0	0	103	283
3	89	186	7	16	0	0	0	0	96	202
4	11	9	0	3	0	0	0	0	11	12
7	211	204	16	19	0	0	0	0	227	223
8	290	177	14	27	0	0	0	0	304	204
9	13	6	0	1	0	0	0	0	13	7
10	194	139	9	22	0	0	0	0	203	161
11	75	64	5	10	0	0	0	0	80	74
12	329	141	18	20	0	0	0	0	347	161
13	360	334	22	35	0	0	0	0	382	369
14	313	179	18	30	0	0	0	0	331	209
15	170	74	12	13	0	0	0	0	182	87
16	101	73	5	13	0	0	2	0	108	86
17	62	26	6	5	0	0	0	0	68	31
18	170	65	11	16	0	0	0	0	181	81
19	174	74	21	18	0	0	0	0	195	92
21	475	146	44	30	0	0	0	0	519	176
23	267	100	29	17	0	0	0	0	296	117
24	90	33	4	2	0	0	0	0	94	35
25	316	122	33	17	0	0	2	2	351	141
26	196	29	11	4	0	0	0	0	207	33
28	387	128	46	16	0	0	7	1	440	145
29	48	17	7	2	0	0	0	0	55	19
31	93	52	12	8	0	0	2	0	107	60
<u>August</u>										
1	56	14	5	2	0	0	0	0	61	16
5	292	93	33	7	0	0	0	0	325	100
6	161	23	20	3	0	0	4	0	185	26
11	223	49	44	6	0	0	0	0	267	55
14	76	10	14	3	3	0	11	2	104	15
18	116	42	21	7	0	0	2	0	139	49
22	69	37	8	1	0	0	3	1	80	39
26	35	22	5	2	0	0	4	0	44	24
27	8	3	1	0	0	0	3	0	12	3

Table A-4. (Continued)

1986 Date	From Nactaquac Dam collection facilities				From Nactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery		Totals	
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
<u>September</u>										
3	79	56	9	2	0	0	3	2	91	60
4	34	41	4	1	0	0	0	0	38	42
9	125	72	19	7	0	0	0	0	144	79
16	77	59	19	9	0	0	6	2	102	70
22	89	23	17	3	0	0	3	2	109	28
<u>October</u>										
1	183	50	25	7	0	0	9	2	217	59
17	104	35	18	3	0	0	0	0	122	38
20	0	0	0	0	1	1	4	11	5	12
29	4	4	0	1	0	0	7	4	11	9
Totals	6,343	3,655	627	457	4	1	72	30	7,046	4,143

Table A-5. Mactaquac daily counts of wild and hatchery, LSW and MSW salmon in 1987.

1987 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery			
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
<u>June</u>										
1	0	19	0	0	0	0	0	0	0	19
8	0	28	0	2	0	0	0	0	0	30
19	1	19	0	1	0	0	0	0	1	20
22	18	159	2	2	0	0	0	0	20	161
24	11	45	0	5	0	0	0	0	11	50
25	33	84	2	8	0	0	0	0	35	92
26	13	19	4	0	0	0	0	0	17	19
29	106	306	14	17	0	0	0	0	120	323
30	34	137	1	4	0	0	0	0	35	141
<u>July</u>										
2	149	136	18	10	0	0	0	0	167	146
3	102	143	26	23	0	0	0	0	128	166
6	351	213	94	17	0	0	0	0	445	230
7	222	193	50	16	0	0	0	0	272	209
8	204	59	64	5	0	0	0	0	268	64
9	53	45	35	6	0	0	0	0	88	51
10	211	72	89	8	0	0	2	0	302	80
11	281	89	87	8	0	0	0	0	368	97
12	218	167	140	22	0	0	0	0	358	189
13	128	52	94	12	0	0	10	0	232	64
14	42	8	18	3	0	0	0	0	60	11
15	23	4	7	1	0	0	3	1	33	6
16	75	25	33	1	0	0	0	0	108	26
17	210	97	67	12	0	0	0	0	277	109
20	419	142	182	18	0	0	0	0	601	160
21	94	9	67	2	0	0	4	0	165	11
22	70	13	49	7	0	0	2	0	121	20
23	89	15	38	4	0	0	0	0	127	19
24	100	23	74	2	0	0	3	0	177	25
27	275	62	117	12	0	0	0	0	392	74
28	71	19	52	4	0	0	0	0	123	23
29	72	9	48	1	0	0	0	0	120	10
30	42	6	47	2	0	0	0	0	89	8
<u>August</u>										
4	281	74	212	17	0	0	0	0	493	91
5	59	22	47	3	0	0	3	0	109	25
10	67	18	44	7	0	0	0	0	111	25
11	88	21	64	2	0	0	11	0	163	23
18	146	34	124	6	0	0	11	0	281	40
21	19	5	24	1	0	0	7	0	50	6
25	18	5	23	1	0	0	3	0	44	6
26	9	6	14	1	0	0	8	0	31	7
28	9	5	11	2	0	0	2	0	22	7
31	22	20	15	1	0	0	10	1	47	22

Table A-5. (Continued)

1987 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery			
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
<u>September</u>										
2	20	39	22	3	0	0	7	0	49	42
4	19	16	21	7	0	0	6	0	46	23
10	71	87	64	14	0	0	2	0	137	101
11	25	22	28	4	0	0	2	0	55	26
14	52	45	40	3	0	0	0	0	92	48
16	19	9	9	1	0	0	9	0	37	10
17	32	20	26	5	0	0	0	0	58	25
21	85	69	78	8	0	0	13	1	176	78
22	26	10	18	0	0	0	3	0	47	10
24	74	23	49	2	0	0	15	0	138	25
29	59	19	59	6	0	0	15	0	133	25
<u>October</u>										
2	28	31	29	3	0	0	0	0	57	34
13	101	40	83	1	0	0	0	0	184	41
14	31	21	36	2	0	0	22	1	89	24
23	18	10	20	3	0	0	25	0	63	13
<u>November</u>										
2	10	3	5	1	1	0	12	1	28	5
Totals	5,105	3,091	2,684	339	1	0	210	5	8,000	3,435

Table A-6. Mactaquac daily counts of wild and hatchery, LSW and MSW salmon in 1988.

1988 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery			
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
<u>June</u>										
7	0	16	0	6	0	0	0	0	0	22
13	0	26	0	7	0	0	0	0	0	33
17	1	30	0	5	0	0	0	0	1	35
20	0	20	0	0	0	0	0	0	0	20
21	3	60	0	18	0	0	0	0	3	78
23	9	44	0	6	0	0	0	0	9	50
27	36	159	4	21	0	0	0	0	40	180
29	22	62	3	6	0	0	0	0	25	68
30	34	38	3	12	0	0	0	0	37	50
<u>July</u>										
4	80	69	10	19	0	0	0	0	90	88
6	28	53	2	15	0	0	0	0	30	68
7	93	69	8	27	0	0	0	0	101	96
8	163	86	11	27	0	0	0	1	174	114
11	403	143	29	42	0	0	0	0	432	185
12	457	142	76	52	0	0	0	0	533	194
13	379	62	44	34	0	0	0	0	423	96
14	217	55	34	28	0	0	0	0	251	83
15	339	45	42	21	0	0	0	0	381	66
17	713	106	81	25	0	0	0	0	794	131
18	510	72	30	10	0	0	0	0	540	82
19	330	40	52	11	0	0	3	1	385	52
21	657	55	59	31	0	0	0	0	716	86
22	237	25	24	9	0	0	3	4	264	38
25	392	42	52	19	0	0	4	1	448	62
26	89	7	24	4	0	0	0	0	113	11
27	94	8	22	4	0	0	0	0	116	12
28	87	3	14	3	0	0	0	0	101	6
29	316	34	53	9	0	0	5	1	374	44
31	439	40	60	14	0	0	0	0	499	54
<u>August</u>										
2	148	13	22	9	0	0	0	0	170	22
3	41	4	4	3	0	0	0	0	45	7
8	196	13	38	2	0	0	8	0	242	15
10	43	4	10	2	0	0	4	0	57	6
22	111	20	23	3	0	0	14	3	148	26
29	50	12	10	13	0	0	0	0	60	25
30	162	35	28	11	0	0	18	3	208	49

Table A-6. (Continued)

1988 Date	From Mactaquac Dam collection facilities				From Mactaquac Hatchery migration channel				Totals	
	Wild		Hatchery		Wild		Hatchery			
	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW	LSW	MSW
<u>September</u>										
7	236	50	20	17	0	0	8	4	264	71
13	201	41	20	22	0	0	7	2	228	65
20	209	46	36	12	0	0	2	1	247	59
27	195	28	20	7	0	0	1	2	216	37
<u>October</u>										
3	110	23	16	11	0	0	3	1	129	35
12	150	17	17	7	0	0	14	5	181	29
24	76	10	6	9	0	0	13	11	95	30
31	6	3	2	0	0	0	13	17	21	20
Totals	8,062	1,930	1,009	613	0	0	120	57	9,191	2,600

APPENDIX B**DAILY DISTRIBUTION OF ATLANTIC SALMON
TO THE WOODSTOCK RELEASE SITE**

Numbers include 1SW and MSW salmon of wild and hatchery origin, sorted by sex, taken at both the Mactaquac Dam collection facilities and the Mactaquac Hatchery migration channel. The salmon were trucked from the sorting facilities at Mactaquac Hatchery and released just above the town of Woodstock at a point approximately 17 km below the upper end of the Mactaquac Headpond.

Table B-1. Daily distribution of Atlantic salmon to the Woodstock release site in 1983.

1983 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>July</u>										
4	30	0	0	0	0	50	0	0	30	50
5	29	0	0	0	1	59	0	0	29	60
11	150	0	0	0	3	24	0	1	150	28
12	134	0	16	0	19	57	1	6	150	83
15	198	0	5	0	0	0	0	0	203	0
20	233	0	25	0	3	24	0	0	258	27
25	248	1	72	0	0	0	0	0	321	0
29	213	2	53	0	0	13	0	0	268	13
<u>August</u>										
5	44	4	21	5	0	4	0	4	74	8
10	96	6	35	1	0	4	0	1	138	5
16	55	5	32	1	0	6	0	2	93	8
22	51	4	37	1	2	10	0	1	93	13
30	65	4	33	1	0	0	0	0	103	0
<u>September</u>										
7	60	5	38	4	3	26	1	6	107	36
13	13	1	19	2	1	15	0	1	35	17
26	57	6	60	4	0	29	1	5	127	35
<u>October</u>										
6	57	6	45	2	1	7	0	1	110	9
31	28	7	29	1	0	6	0	3	65	9
Totals	1,761	51	520	22	33	334	3	31	2,354	401

Table B-2. Daily distribution of Atlantic salmon to the Woodstock release site in 1984.

1984 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>July</u>										
7	6	0	4	0	4	44	1	1	10	50
9	10	0	3	0	3	41	0	3	13	47
11	18	0	4	0	3	95	0	0	22	98
12	6	1	2	0	3	43	0	3	9	49
16	210	11	14	1	3	43	0	3	236	49
17	226	6	19	0	2	40	0	2	251	44
18	54	1	5	0	3	35	1	5	60	44
21	43	0	10	0	2	37	0	4	53	43
23	223	12	16	0	5	40	0	4	251	49
24	78	6	42	2	11	74	1	7	128	93
25	82	0	9	0	3	91	1	7	91	102
27	120	2	41	0	0	0	0	0	163	0
28	107	2	19	0	0	0	0	0	128	0
31	170	4	25	1	0	0	0	0	200	0
<u>August</u>										
1	220	6	32	0	4	41	0	3	258	48
4	130	5	24	0	7	55	1	9	159	72
7	170	3	27	0	1	0	0	0	200	1
8	75	2	8	0	2	13	0	2	85	17
9	1	0	0	0	4	47	1	7	1	59
14	77	0	11	0	4	34	0	1	88	39
<u>September</u>										
17	51	1	29	0	8	73	2	7	81	90
25	49	4	22	0	7	39	0	4	75	50
26	141	10	12	0	14	71	1	4	163	90
<u>October</u>										
22	0	0	0	0	5	25	3	11	0	44
23	61	3	4	0	1	33	1	4	68	39
26	80	7	10	1	4	36	2	9	98	51
30	13	2	6	0	1	14	3	8	21	26
Totals	2,421	88	398	5	104	1,064	18	108	2,912	1,294

Table B-3. Daily distribution of Atlantic salmon to the Woodstock release site in 1985.

1985 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>July</u>										
2	0	0	0	0	5	63	0	6	0	74
3	2	0	0	0	2	112	1	6	2	121
4	2	0	0	0	5	61	0	2	2	68
10	40	0	6	0	27	164	5	8	46	204
13	92	0	10	0	0	0	0	0	102	0
16	64	3	8	0	6	18	1	0	75	25
17	66	6	10	1	16	94	1	12	83	123
22	120	8	22	1	0	0	0	0	151	0
23	28	0	6	0	4	30	0	4	34	38
24	74	2	11	0	5	30	1	0	87	36
25	66	2	24	1	5	33	1	0	93	39
29	75	0	19	0	2	27	0	0	94	29
30	265	5	27	2	0	0	0	0	299	0
31	247	4	51	2	0	0	0	0	304	0
<u>August</u>										
2	71	1	41	0	1	17	1	0	113	19
6	211	4	93	3	5	77	2	7	311	91
7	140	13	13	0	0	7	0	1	166	8
11	1	0	0	0	0	0	0	0	1	0
16	57	2	34	1	0	5	0	1	94	6
30	31	3	61	2	0	10	2	0	97	12
<u>September</u>										
5	60	1	68	4	9	90	1	2	133	102
11	97	11	78	9	0	1	0	1	195	2
<u>October</u>										
1	62	7	40	2	19	96	1	5	111	121
16	106	10	31	3	9	85	1	3	150	98
22	43	1	10	0	4	22	0	0	54	26
28	3	0	67	2	0	0	0	11	72	11
30	32	6	7	0	0	24	0	1	45	25
Totals	2,055	89	737	33	124	1,066	18	70	2,914	1,278

Table B-4. Daily distribution of Atlantic salmon to the Woodstock release site in 1986.

1986 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>June</u>										
25	9	0	3	0	8	57	1	4	12	70
<u>July</u>										
2	25	0	3	0	8	40	1	3	28	52
7	114	1	5	0	0	0	0	0	120	0
8	105	0	9	0	7	63	0	4	114	74
10	63	5	3	0	3	35	0	3	71	41
13	179	16	6	0	4	58	2	6	201	70
14	156	12	6	0	1	16	1	2	175	20
15	168	11	11	0	0	0	0	0	190	0
18	170	0	11	0	6	57	5	10	181	78
21	181	6	17	0	0	0	0	0	204	0
25	370	7	33	0	0	6	0	0	410	6
28	205	5	21	0	8	44	2	4	231	58
<u>August</u>										
6	159	2	21	1	0	17	2	1	183	20
11	207	15	40	0	0	1	0	0	262	1
<u>September</u>										
10	106	19	17	0	2	42	1	3	142	48
24	71	18	20	0	3	12	1	3	109	19
<u>October</u>										
2	142	41	31	1	10	29	4	3	215	46
20	79	26	20	2	2	11	2	4	127	19
<u>November</u>										
7	4	0	15	1	30	6	9	2	20	47
Totals	2,513	185	292	5	92	494	31	52	2,995	669

Table B-5. Daily distribution of Atlantic salmon to the Woodstock release site in 1987.

1987 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>July</u>										
10	225	5	107	0	5	72	1	3	337	81
12	412	31	180	4	16	168	3	15	627	202
13	48	8	35	1	3	36	0	5	92	44
17	278	16	107	2	6	94	2	9	403	111
21	160	4	114	0	0	0	0	0	278	0
30	167	18	146	1	0	0	0	0	332	0
<u>August</u>										
4	57	14	54	1	0	21	1	5	126	27
5	49	10	49	0	0	22	0	1	108	23
19	127	19	133	0	0	0	0	0	279	0
29	41	14	89	1	0	0	0	0	145	0
<u>September</u>										
11	41	30	58	5	11	76	3	11	134	101
21	18	14	26	0	0	12	0	2	58	14
<u>October</u>										
3	27	12	42	3	2	7	0	1	84	10
13	25	19	27	3	0	6	0	1	74	7
14	30	14	37	3	1	1	0	0	84	2
26	18	5	62	7	0	1	0	0	92	1
<u>November</u>										
2	12	7	28	1	6	3	4	0	48	13
Totals	1,735	240	1,294	32	50	519	14	53	3,301	636

Table B-6. Daily distribution of Atlantic salmon to the Woodstock release site in 1988.

1988 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		Totals	
	M	F	M	F	M	F	LSW	MSW	LSW	MSW
<u>June</u>										
23	5	0	0	0	2	21	1	1	5	25
29	15	2	2	0	3	42	0	5	19	50
<u>July</u>										
5	35	1	4	0	1	27	0	8	40	36
8	74	0	7	0	1	26	1	10	81	38
9	88	1	4	0	0	0	0	0	93	0
11	63	4	2	0	0	19	0	8	69	27
12	145	11	27	0	0	40	0	15	183	55
13	171	7	22	0	0	0	0	0	200	0
14	161	5	24	1	0	0	0	0	191	0
16	317	22	42	0	2	41	1	18	381	62
17	169	8	23	0	0	0	0	0	200	0
18	175	11	13	1	0	0	0	0	200	0
20	322	8	55	0	3	33	1	11	385	48
21	386	27	32	2	0	33	7	12	447	52
26	337	23	45	2	0	0	0	0	407	0
<u>August</u>										
2	145	3	22	0	0	0	0	0	170	0
8	224	13	50	0	0	0	0	0	287	0
<u>September</u>										
7	181	55	27	1	0	45	3	18	264	66
<u>October</u>										
13	126	24	29	2	0	8	0	8	181	16
25	60	16	17	2	0	8	0	15	95	23
<u>November</u>										
7	4	2	12	3	14	2	16	12	21	44
Totals	3,203	243	459	14	26	345	30	141	3,919	542

APPENDIX C

DAILY DISTRIBUTION OF ATLANTIC SALMON
TO THE TOBIQUE RIVER RELEASE SITE

Numbers include 1SW and MSW salmon of wild and hatchery origin, sorted by sex, and trucked directly from the secondary sorting facilities at Mactaquac to the Tobique release site. The release site is near Arthurette and located on the north bank of the Tobique Narrows headpond, about 15 km above the dam and 2.5 km below the upper end of the headpond.

Table C-1. Daily distribution of Atlantic salmon to the Tobique release site in 1983.

1983 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>June</u>										
21	0	0	0	0	5	11	0	2	0	18
30	48	1	11	0	4	86	2	8	60	100
<u>July</u>										
4	106	2	21	0	11	194	1	14	129	220
5	71	1	17	1	6	147	1	9	90	163
8	0	0	0	0	9	92	1	11	0	113
14	189	0	1	0	9	127	0	17	190	153
19	262	0	69	2	13	114	0	0	333	127
22	195	0	32	1	1	15	0	0	228	16
28	278	14	88	10	9	60	0	1	390	70
<u>August</u>										
3	245	16	76	6	0	24	0	0	343	24
30	12	2	6	0	4	99	0	7	20	110
<u>September</u>										
2	28	2	27	3	5	48	2	5	60	60
<u>October</u>										
3	84	7	35	1	3	14	1	1	127	19
14	79	9	56	2	1	7	0	1	146	9
21	86	10	57	1	1	16	0	3	154	20
<u>November</u>										
3	0	0	0	0	5	29	1	12	0	47
Totals	1,683	64	496	27	86	1,083	9	91	2,270	1,269

Table C-2. Daily distribution of Atlantic salmon to the Tobique release site in 1984.

1984 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>June</u>										
22	0	0	0	0	7	12	0	0	0	19
28	4	0	0	0	6	29	1	1	4	37
<u>July</u>										
4	10	1	0	0	7	70	4	2	11	83
6	18	0	0	0	36	192	4	7	18	239
7	19	0	6	0	15	138	1	2	25	156
8	25	0	2	0	10	220	5	13	27	248
10	10	3	7	2	15	120	0	1	22	136
11	32	5	7	0	9	222	0	4	44	235
12	65	3	6	0	5	187	1	7	74	200
13	52	3	7	0	11	178	2	6	62	197
14	61	1	6	0	12	154	1	3	68	170
15	84	5	10	0	17	173	1	11	99	202
16	21	1	3	0	17	238	1	20	25	276
17	9	2	1	0	15	252	1	19	12	287
18	170	4	23	2	8	183	0	10	199	201
20	142	2	31	0	13	108	0	10	175	131
23	128	2	10	1	11	160	2	7	141	180
24	110	2	9	0	11	194	0	19	121	224
25	205	7	28	0	10	139	0	11	240	160
26	135	1	22	0	15	183	2	10	158	210
27	28	1	4	0	12	143	0	15	33	170
30	68	2	9	0	10	155	1	17	79	183
31	1	0	0	0	15	172	1	12	1	200
<u>August</u>										
1	175	2	13	0	11	128	3	13	190	155
2	147	3	18	0	10	146	4	16	168	176
3	160	4	23	0	11	97	1	8	187	117
8	139	1	38	0	14	145	1	10	178	170
9	309	4	50	2	6	77	1	16	365	100
10	329	2	45	0	2	34	0	2	376	38
11	57	0	17	0	2	12	0	3	74	17
14	223	4	50	2	9	99	1	8	279	117
18	121	2	69	1	9	43	2	3	193	57
23	78	2	29	2	0	15	0	1	111	16
28	71	7	30	1	1	32	1	8	109	42
31	54	4	20	0	2	20	0	0	78	22
<u>September</u>										
7	68	3	47	3	6	52	3	8	121	69
10	77	3	40	1	4	112	2	7	121	125
18	176	5	17	0	21	125	0	7	198	153
20	80	3	16	0	11	82	4	4	99	101

Table C-2. (Continued)

1984 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>October</u>										
5	106	2	2	0	0	12	0	0	110	12
9	186	7	11	0	2	7	0	0	204	9
11	203	17	29	1	0	2	0	0	250	2
16	273	14	27	1	0	1	0	0	315	1
19	95	7	12	0	0	0	0	0	114	0
<u>November</u>										
2	0	0	0	0	17	25	8	0	0	50
6	0	0	0	0	20	18	23	0	0	61
Totals	4,524	141	794	19	445	4,906	82	321	5,478	5,754

Table C-3. Daily distribution of Atlantic salmon to the Tobique release site in 1985.

1985 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		Totals	
	M	F	M	F	M	F	M	F	LSW	MSW
<u>May</u>										
31	0	0	0	0	19	40	0	5	0	64
<u>June</u>										
7	0	0	0	0	24	88	1	9	0	122
12	0	0	0	0	17	70	3	5	0	95
20	0	0	0	0	20	59	2	9	0	90
25	0	0	0	0	23	83	3	12	0	121
30	0	0	0	0	0	0	0	0	0	0
<u>July</u>										
3	6	1	3	0	14	255	2	19	10	290
4	22	1	1	0	53	541	4	17	24	615
6	40	0	3	0	34	230	2	22	43	288
8	40	2	8	0	29	218	4	18	50	269
11	28	1	6	0	13	168	2	15	35	198
12	20	3	6	1	18	159	4	12	30	193
14	0	0	0	0	38	237	9	16	0	300
15	99	4	13	0	44	168	3	9	116	224
17	72	1	7	0	43	207	4	13	80	267
18	93	2	18	0	40	186	5	10	113	241
19	96	5	35	0	13	106	3	10	136	132
23	186	4	37	0	29	164	5	6	227	204
24	262	9	51	0	24	111	1	9	322	145
26	198	7	34	0	15	79	1	4	239	99
29	277	2	72	1	13	54	2	4	352	73
<u>August</u>										
1	171	3	32	0	17	154	1	9	206	181
7	269	14	40	2	1	84	0	4	325	89
8	300	34	47	0	3	47	1	2	381	53
11	140	10	57	1	0	36	0	3	208	39
15	214	10	103	4	4	61	0	3	331	68
23	149	8	84	2	4	43	1	1	243	49
28	60	7	45	4	0	21	0	1	116	22
<u>September</u>										
12	8	1	9	1	16	191	1	5	19	213
18	115	10	84	3	25	119	2	12	212	158
25	48	5	48	1	16	73	2	8	102	99
<u>October</u>										
10	118	12	37	2	11	53	1	2	169	67
Totals	3,031	156	880	22	620	4,105	69	274	4,089	5,068

Table C-4. Daily distribution of Atlantic salmon to the Tobique release site in 1986.

1986 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>June</u>										
23	4	0	0	0	1	66	2	7	4	76
30	40	0	1	0	2	109	2	6	41	111
<u>July</u>										
1	30	0	3	0	14	106	4	3	33	127
3	100	0	7	0	29	219	3	13	107	264
4	70	0	4	0	14	119	6	10	74	149
7	41	1	1	0	7	121	3	7	43	138
8	203	6	9	0	6	116	1	14	218	137
9	43	0	3	0	5	22	1	3	46	31
11	150	11	7	1	6	108	6	12	169	132
12	160	14	10	1	3	85	2	10	185	100
13	181	4	14	0	5	137	2	9	199	153
14	168	7	6	0	15	148	2	12	181	177
15	93	6	5	0	14	172	4	22	104	212
17	189	10	15	0	20	101	8	13	214	142
20	154	20	19	0	7	54	5	8	193	74
22	282	6	22	0	18	116	7	17	310	158
24	248	19	26	0	15	74	6	9	293	104
26	221	4	12	0	20	133	5	10	237	168
29	221	2	33	0	8	73	4	7	256	92
<u>August</u>										
1	145	4	16	0	10	48	2	6	165	66
5	280	12	30	0	5	68	1	5	322	79
15	77	3	22	0	2	48	1	9	102	60
19	113	3	19	0	1	34	1	6	135	42
26	105	7	23	0	0	54	2	2	135	58
<u>September</u>										
4	86	27	13	2	2	79	0	4	128	85
18	64	13	21	1	6	36	2	5	99	49
Totals	3,468	179	341	5	235	2,446	82	229	3,993	2,992

Table C-5. Daily distribution of Atlantic salmon to the Tobique release site in 1987.

1987 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>June</u>										
19	1	0	0	0	6	12	0	1	1	19
23	16	2	2	0	16	91	0	2	20	109
26	38	6	2	0	15	94	1	2	46	112
29	68	3	13	0	6	130	2	3	84	141
30	81	1	6	0	19	255	3	6	88	283
<u>July</u>										
3	170	3	24	0	6	142	1	4	197	153
4	75	3	19	1	8	80	2	7	98	97
6	239	17	60	2	5	103	0	5	318	113
7	225	8	54	0	16	202	1	6	287	225
8	146	11	52	0	1	66	0	3	209	70
9	137	2	45	0	3	36	0	3	184	42
13	70	4	61	1	2	15	0	2	136	19
14	49	0	37	0	5	20	0	3	86	28
18	52	1	12	0	0	15	1	1	65	17
20	207	9	95	1	1	70	0	8	312	79
21	185	18	79	0	1	61	0	10	282	72
24	165	10	100	0	0	52	2	9	275	63
28	271	16	122	0	2	61	0	10	409	73
31	0	0	0	0	2	31	1	3	0	37
<u>August</u>										
5	188	24	151	3	2	51	2	5	366	60
11	139	16	117	1	1	38	2	6	273	47
21	0	0	0	0	1	37	0	6	0	44
<u>September</u>										
1	16	6	25	0	0	36	0	5	47	41
4	24	14	53	2	6	48	5	4	93	63
14	15	8	23	3	2	20	1	2	49	25
15	25	7	33	2	3	21	1	0	67	25
16	18	23	26	0	4	17	0	0	67	21
21	22	16	22	1	0	18	0	1	61	19
22	23	9	30	1	3	13	0	1	63	17
23	21	6	37	5	0	15	0	1	69	16
25	27	16	35	3	1	13	0	1	81	15
26	31	14	34	2	0	3	0	0	81	3
30	24	14	37	2	1	8	0	3	77	12
<u>October</u>										
15	19	22	43	2	0	8	0	0	86	8
Totals	2,787	309	1,449	32	138	1,882	25	123	4,577	2,168

Table C-6. Daily distribution of Atlantic salmon to the Tobique release site in 1988.

1988 Date	LSW				MSW				Totals	
	Wild		Hatchery		Wild		Hatchery		LSW	MSW
	M	F	M	F	M	F	M	F		
<u>June</u>										
7	0	0	0	0	1	2	3	3	0	9
14	0	0	0	0	1	11	0	3	0	15
17	0	1	0	0	1	25	0	4	1	30
22	3	0	0	0	4	48	1	10	3	63
28	39	1	4	0	10	153	3	21	44	187
<u>July</u>										
2	37	1	4	0	2	39	2	9	42	52
7	9	0	1	0	5	52	0	18	10	75
8	85	1	8	0	0	58	1	19	94	78
11	170	8	12	0	7	96	1	27	190	131
12	231	7	33	0	5	83	2	14	271	104
13	248	8	34	1	1	53	2	17	291	73
15	209	8	27	0	7	98	3	46	244	154
17	273	10	36	1	0	61	1	13	320	75
18	347	11	27	0	2	46	1	12	385	61
19	209	10	10	0	5	51	1	6	229	63
22	337	11	42	0	3	21	4	12	390	40
23	120	2	10	0	0	12	1	5	132	18
28	276	9	64	0	1	51	2	26	349	80
30	296	20	57	1	2	30	0	10	374	42
31	289	19	36	1	0	22	1	7	345	30
<u>August</u>										
3	122	9	22	1	0	34	1	14	154	49
11	33	10	14	0	1	14	0	4	57	19
23	101	10	37	0	0	19	1	5	148	25
30	176	36	51	5	0	46	3	22	268	71
<u>September</u>										
14	167	34	24	3	1	25	1	14	228	41
21	164	45	34	4	1	25	1	8	247	35
28	166	29	20	1	1	9	0	3	216	13
<u>October</u>										
4	87	23	17	2	0	22	0	6	129	28
<u>November</u>										
8	0	0	0	0	0	20	2	3	0	25
Totals	4,194	323	624	20	61	1,226	38	361	5,161	1,686

APPENDIX D

ESTIMATED SEMI-MONTHLY TOTALS OF FISH OTHER
THAN ATLANTIC SALMON ASCENDING MACTAQUAC FISH
COLLECTION FACILITIES

Estimated semi-monthly totals of each species are determined when the fish are transferred from the brail pool to the hopper pool. When fish such as alewives are ascending in large numbers, they are counted by tens as they pass from the brail into the hopper. There is no count on fish that are able to pass through the wire mesh (rectangular opening 3.8 cm x 5.1 cm) of the hopper and barrier gates. Fish such as eels and perch are not estimated.

Table D-3. Estimated semi-monthly totals of fish other than Atlantic salmon ascending Macaqua collection facilities in 1985.

Species	May		June		July		August		September		October		Totals
	16-31	1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-30	1-15	
Alewives													
- headpond	577,000	105,500	94,500	45,700	0	0	0	0	0	0	0	0	822,700
- commercial	0	1,717,096	1,329,672	127,981	0	0	0	0	0	0	0	0	3,174,749
Bass-smallmouth	0	0	1	0	0	0	0	0	1	0	0	0	2
Bass-striped	0	0	0	2	0	2	7	20	0	0	0	1	32
Pickrel	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmon-coho	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmon-sebago	0	3	0	2	0	0	0	1	0	0	0	0	6
Shad													
- headpond	17	86	7	8	19	18	0	1	0	0	0	0	155
- commercial	0	730	0	0	0	0	0	0	0	0	0	0	730
Trout-brook	2	3	1	0	0	0	0	0	0	0	0	0	6
Trout-brown	0	0	3	4	0	0	0	0	0	0	0	0	7
Trout-lake	0	0	0	0	0	1	0	0	0	0	0	0	1
Trout-rainbow	0	0	0	0	0	0	0	0	0	0	0	0	0
Whitefish	0	0	0	0	0	0	0	0	0	1	16	1	17

Table D-4. Estimated semi-monthly totals of fish other than Atlantic salmon ascending Nactaquac collection facilities in 1986.

Species	May		June		July		August		September		October		Totals
	1-31	1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-30		
Alwives													
- headpond	938,000	355,000	0	0	0	0	0	0	0	0	0	0	1,293,000
- commercial	0	0	0	0	0	0	0	0	0	0	0	0	0
Bass-seallmouth	0	0	0	1	2	0	0	0	0	1	0	0	4
Bass-striped	0	0	0	1	6	7	1	0	0	0	0	0	15
Bass-coho	0	0	3	0	0	0	0	0	0	0	0	0	3
Pickrel	0	0	0	0	0	0	0	0	0	0	1	0	1
Salmon-sebago	0	0	4	0	0	1	0	0	0	0	0	0	5
Shad													
- headpond	0	61	0	0	5	217	108	2	4	5	4	4	406
- commercial	0	0	0	0	0	0	0	0	0	0	0	0	0
Trout-brook	0	1	5	0	0	0	0	0	0	0	4	0	10
Trout-brown	0	0	20	0	1	0	0	0	0	0	1	0	22
Trout-lake	0	0	0	0	0	0	0	0	0	0	0	0	0
Trout-rainbow	0	0	0	0	0	0	0	0	0	0	0	0	0
Whitefish	0	0	0	0	0	0	0	0	0	0	11	56	67

Table D-5. Estimated semi-monthly totals of fish other than Atlantic salmon ascending MacLachlan collection facilities in 1987.

Species	May		June		July		August		September		October		Totals
	1-31		1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-30	
Alewives	1,619,500		0	0	0	0	0	0	0	0	0	0	1,619,500
- headpond	0		1,722,037	2,991,170	0	0	0	0	0	0	0	0	4,713,207
- commercial	0		0	1	2	1	1	0	0	3	0	0	10
Bass-callaouth	0		0	0	2	9	17	34	6	7	1	4	80
Bass-striped	0		0	0	0	0	0	0	0	0	0	0	0
Pictrel	0		0	0	0	0	0	0	0	0	0	0	0
Salmon-coho	0		0	0	0	0	0	0	0	0	0	0	0
Salmon-ecbago	0		1	11	2	2	1	0	0	0	0	0	15
Shad	4		0	0	9	19	8	4	0	0	0	0	44
- headpond	0		310	255	0	0	0	0	0	0	0	0	565
- commercial	7		5	7	0	0	0	0	0	1	0	1	21
Trout-brook	0		0	1	0	1	0	0	0	0	0	0	2
Trout-brown	0		0	0	0	0	0	0	0	0	0	0	0
Trout-lake	0		0	0	0	0	0	0	0	0	0	0	0
Trout-rainbow	0		0	0	0	0	0	0	0	0	0	0	0
Whitefish	0		0	0	0	0	0	0	0	0	10	58	68

Table D-6. Estimated semi-monthly totals of fish other than Atlantic salmon ascending Nactaquac collection facilities in 1980.

Species	May		June		July		August		September		October		Totals
	1-31	1-15	16-30	1-15	16-31	1-15	16-31	1-15	16-30	1-15	16-30	1-15	
Alewives													
- headpond	2,218,000	0	0	0	0	0	0	0	0	0	0	0	2,218,000
- commercial	429,273	2,920,086	886,031	0	0	0	0	0	0	0	0	0	4,235,390
Bass-saillmouth	0	0	0	0	1	6	1	1	2	0	0	0	11
Bass-striped	0	0	0	2	0	6	11	0	0	0	0	0	20
Pickrel	0	0	0	0	0	1	0	0	0	0	0	1	1
Salmon-coho	0	0	0	0	0	0	0	0	0	0	0	0	0
Salmon-sebago	0	272	31	1	4	1	1	0	0	0	0	0	310
Shad													
- headpond	10	0	0	0	44	6	9	0	0	0	0	0	69
- commercial	100	1,585	90	0	0	0	0	0	0	0	0	0	1,775
Trout-brook	0	27	3	1	3	0	0	0	0	0	0	0	34
Trout-brown	1	0	6	1	0	0	0	0	0	0	0	0	8
Trout-lake	0	0	0	0	0	0	0	0	0	0	0	0	0
Trout-rainbow	0	0	0	0	0	0	0	0	0	0	0	0	0
Whitefish	0	0	0	0	0	0	0	0	0	4	10	14	14

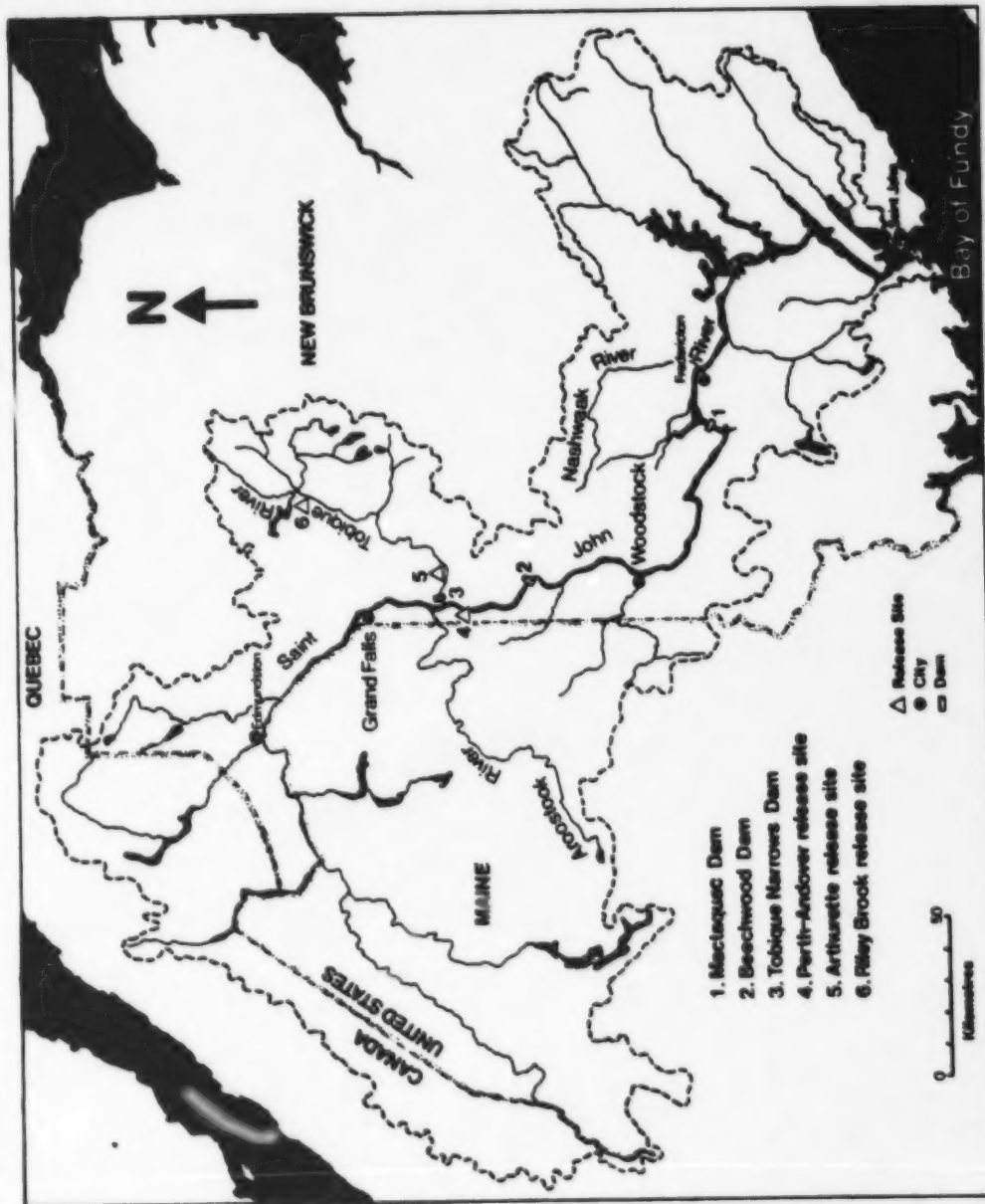


FIG. 1. Major power dams and salmon release sites, Saint John River System, New Brunswick.